

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1-73 (canceled)

1           74. (previously presented): A probe for laser desorption/ionization mass  
2 spectrometry, wherein the probe comprises a sample presenting surface and a moiety that binds  
3 to biotin immobilized by chemical bonding to the sample presenting surface, wherein the moiety  
4 on the sample presenting surface is bound to the biotin group of at least one biotinylated protein,  
5 and wherein the probe further comprises a matrix.

1           75. (previously presented): The probe of claim 74, wherein the moiety binds  
2 biotin with an affinity constant of  $K_a = 10^{15} M^{-1}$ .

76-77 (canceled)

1           78. (previously presented): The probe of claim 74, wherein the sample  
2 presenting surface comprises two or more moieties that bind to biotin arranged in a  
3 predetermined array.

1           79. (previously presented): The probe of claim 74, wherein the moiety that binds  
2 to biotin is selected from the group consisting of streptavidin and avidin.

1           80. (previously presented): The probe of claim 74, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

1           81. (previously presented): A method comprising the steps of:  
2           a) providing a probe comprising a sample presenting surface and a moiety that  
3 binds to biotin immobilized by chemical bonding to the sample presenting surface;

4                   b) contacting the probe with at least one biotinylated protein under conditions  
5                   allowing the biotin group to bind to the moiety that binds to biotin; and  
6                   c) performing laser desorption/ionization mass spectrometry on the proteins  
7                   bound on the surface of the probe.

1                 82. (previously presented): The method of claim 81, further comprising after  
2                 step b) the step of:  
3                   washing to remove unbound molecules from the probe.

1                 83. (previously presented): The method of claim 81, wherein the moiety binds  
2                 biotin with an affinity constant of  $K_a = 10^{15} \text{ M}^{-1}$ .

1                 84. (previously presented): The method of claim 81, wherein the probe  
2                 comprises two or more moieties that bind to biotin arranged in a predetermined array.

1                 85. (previously presented): The method of any one of claims 81-84, wherein the  
2                 moiety is covalently bonded to the sample presenting surface.

1                 86. (previously presented): The method of any one of claims 81-84, further  
2                 comprising the step of applying a matrix after allowing the biotin group to bind to the moiety  
3                 that binds to biotin.

1                 87. (previously presented): The method of any one of claims 81 or 82, wherein  
2                 the moiety that binds to biotin is selected from the group consisting of streptavidin and avidin.

1                 88. (previously presented): The method of claim 87, wherein the moiety is  
2                 covalently bonded to the sample presenting surface.

1                 89. (previously presented): The method of claim 87, further comprising the step  
2                 of applying a matrix after allowing the biotin group to bind to the moiety that binds to biotin.

1                 90. (previously presented): A mass spectrometry apparatus comprising:

2           a) a probe comprising a sample presenting surface and a moiety that binds to  
3 biotin immobilized by chemical bonding to the sample presenting surface;  
4           b) an energy source that directs laser energy to the sample presenting surface for  
5 desorbing and ionizing a biotinylated protein captured by the moiety; and  
6           c) a detector that detects the desorbed, ionized biotinylated protein.

1           91. (previously presented): The apparatus of claim 90, further comprising:  
2           d) a spectrometer tube into which ionized biotinylated protein is accelerated; and  
3           e) means for applying an accelerating electrical potential to the desorbed, ionized  
4 protein; wherein the mass spectrometer is a time-of-flight mass spectrometer.

1           92. (previously presented): The apparatus of claim 91, further comprising:  
2           f) vacuum means for applying a vacuum to the interior of the tube.

1           93. (previously presented): The apparatus of claim 90, wherein the detector  
2 comprises an electron multiplier.

1           94. (previously presented): The apparatus of claim 90, wherein the moiety binds  
2 biotin with an affinity constant of  $K_a = 10^{15} M^{-1}$ .

1           95. (previously presented): The apparatus of claim 90, wherein the moiety on the  
2 probe is bound to the biotin group of at least one biotinylated protein.

1           96. (previously presented): The apparatus of claim 95, wherein the probe further  
2 comprises a matrix.

1           97. (previously presented): The apparatus of claim 90, wherein the probe  
2 comprises two or more moieties that bind to biotin arranged in a predetermined array.

1           98. (previously presented): The apparatus of claim 90, wherein the moiety that  
2 binds to biotin is selected from the group consisting of streptavidin and avidin.

1           99. (previously presented): The apparatus of claim 91, wherein the moiety that  
2 binds to biotin is selected from the group consisting of streptavidin and avidin.

1           100. (previously presented): The apparatus of claim 92, wherein the moiety that  
2 binds to biotin is selected from the group consisting of streptavidin and avidin.

1           101. (previously presented): The apparatus of claim 93, wherein the moiety that  
2 binds to biotin is selected from the group consisting of streptavidin and avidin.

1           102. (previously presented): The apparatus of claim 90, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

1           103. (previously presented): The apparatus of claim 95, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

1           104. (previously presented): The apparatus of claim 96, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

1           105. (previously presented): The apparatus of claim 98, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

1           106. (previously presented): The apparatus of claim 99, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

1           107. (previously presented): The apparatus of claim 100, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

1           108. (previously presented): The apparatus of claim 101, wherein the moiety is  
2 covalently bonded to the sample presenting surface.

109. (previously presented): The apparatus of claim 90, wherein the energy  
source is energy from a nitrogen laser or an Nd-YAG laser.